

Environmental Defense Institute

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Draft Comments (7/14/98) ICPP Draft Cleanup Plan

The proposed Idaho Chemical Processing Plant (ICPP) comprehensive plan is not meeting applicable or relevant and appropriate requirements (ARAR). The Department of Energy (DOE) failed to correctly classify the waste that the plan addresses. Two of the contaminated soil sites (CPP-28 & CPP-79) have transuranic (TRU) elements that cumulatively exceed the definition of 100 nano curies per gram at each site. This waste must go to an NRC/EPA approved geologic repository specifically permitted for TRU waste. Since this contamination resulted from over 100 leaks in the high-level liquid and calcine waste pipes, and acknowledged in DOE's work plan document as high-level waste, a legitimate case can be made that it still is high-level waste and subject to Nuclear Regulatory Commission disposal regulations.¹ Also see Natural Resources Defense Council petition to Nuclear Regulatory Commission July 28, 1998. Additionally, DOE fails to correctly categorize the other waste as mixed low-level (MLLW) which requires either approved treatment (40 CFR 268) or disposal in a permitted Resource Conservation Recovery Act (RCRA) Subtitle C hazardous waste dump. Neither of which the DOE plans to do.

The chart below cites sampling data collected by DOE and published in its 1995 ICPP Remedial Investigation / Feasibility Study and this data shows specifically how the waste meets MLLW criteria. DOE's own Site Treatment Plan Congressionally mandated by the Federal Facility Compliance Act further shows specifically the MLLW classification. The second chart shows MLLW sites that DOE completely ignored and which legally must be included in the plan.

The preferred alternative for the Tank Farm soils (Group 1) is to do nothing except to reduce water infiltration that leaches the contaminants to the aquifer. This alternative is a clear violation of both state and federal statutes.² It is unconscionable that DOE has not long since stopped the 1.47 billion gallons of water discharged within the contamination areas.

The "soils under buildings (Group 2)" is misleading because some of these sites are not under buildings at all but are fully accessible. The Group 2 preferred alternative (soil cover) also does not meet regulatory requirements for the same reason that Group 1 failed.

The "Other Surface Soils Group 3" preferred alternative is to dump the waste on top of the ICPP Percolation Ponds 1 & 2 (CPP-67) and then cover it over with clean soil. These percolation ponds are already designated for RCRA closure because they received the waste water after DOE was forced to stop dumping radioactive/chemical waste directly into the aquifer via the injection wells. The only legal way DOE could dump on top of the ponds would be to treat the waste first so that the RCRA Universal Treatment Standards are met.³ DOE has no intention of treating the waste because there is no incentive to follow the law when the state and federal regulators are silent.

Despite being forced to construct a RCRA/NRC compliant Subtitle C hazardous/radioactive MLLW dump at Hanford, DOE continues to refuse to build one at INEEL. These Subtitle C dumps have double liners, leachate detection/collection systems, and impermeable caps. The reason these laws are on the books is because previous disposal practices resulted in migration of the waste into underlying groundwater. Water sample data at the ICPP already shows massive migration of pollution into the groundwater. Despite this evidence, DOE continues to flaunt the legal requirements

¹ Nuclear Regulatory Commission 10 Code of Federal Regulations ss 60 and 61 defines high-level waste as (1) irradiated reactor fuel, (2) liquid wastes resulting from the operation of the first cycle solvent extraction system, or equivalent, and the concentrated wastes from subsequent extraction cycles, or equivalent, in a facility for reprocessing irradiated reactor fuel, and (3) solids into which such liquid wastes have been converted (ie. calcine).

² Land disposal restrictions (LDR) limitations on land disposal or storage of waste set forth in Idaho Code Title 39 Chapters 44 and 58 and the Rules, Regulations, and Standards for Hazardous Waste, IDAPA ss16.01.05011; Resource Conservation Recovery Act (RCRA) 42 U.S. Code ss 6924; and 40 Code of Federal Regulations (CFR) 268.

³ 40 CFR 268.48

for dump site licensing ⁴ and the pollution will continue to migrate as an uncontrolled radioactive/chemical waste release site.

Another reason why leaving the waste at the ICPP is extremely hazardous - especially underground - is because it lies within the 100 flood plain of the Big Lost River. The US Geological Survey (USGS) released a study this year (1998) acknowledging that the northern half of the ICPP would be flooded in a peak 100-year flood.⁵ USGS estimated that the ICPP would be under several feet of moving water. The detailed report map shows areas at the ICPP that would be under as much as four feet of water. "This peak flow was routed down stream [of the Big Lost River] as if the INEEL diversion dam did not exist. On the basis of a structural analysis of the INEEL diversion dam (U.S. Army Corps of Engineers) the dam was assumed incapable of retaining high flows. The Corps indicated that the diversion dam could fail if flows were to exceed 6,000 cubic feet per second."⁶ A conservative risk assessment would consider cascading events - 100 flood plus failure of Mackay Dam (built in 1917) resulting in estimated flows of 7,260 + 54,000 cubic feet per second respectively. USGS did not consider cascading events but noted previous studies showing that failure of Mackay Dam alone would result in 6 feet of water at the INEEL Radioactive Waste Management Complex.⁷

Nuclear Regulatory Commission restrictions prohibiting citing radioactive waste disposal dumps on 100 year flood plains must be observed. ⁸ The reason for these restrictions is because the flood water will leach the contaminants out of the waste and flush the pollution more rapidly into the aquifer. Since these wastes will remain toxic for tens of thousands of years, they must be disposed of responsibly in a safe permanent repository. These issues must be kept in mind also with respect to the ICPP high-level waste tanks that are some forty feet underground as well as the underground spent reactor fuel storage and calcine storage bins. All of these high-level waste sites are extremely vulnerable.

DOE currently is reneging on its commitment to Congress to bring the Department under NRC regulatory jurisdiction. Even the Congressional General Accounting Office issued a report critical of DOE's resistance to

⁴ Idaho Code Title 39-5808. SITING LICENSE REQUIRED. No person shall construct, expand, enlarge or alter a commercial hazardous waste disposal, treatment or storage facility or any on-site land disposal facility for wastes listed pursuant to section 201(d)(2) and (e), as modified by section 209 of "The Hazardous and Solid Waste Amendments of 1984," as enacted by the U.S. congress, without a siting license from the department.

39-5811. EXPANSION, ENLARGEMENT OR ALTERATION OF TREATMENT, STORAGE, OR DISPOSAL FACILITY -- REVIEW -- SITING LICENSES. (1) A hazardous waste treatment, storage, or disposal facility in existence on July 1, 1985, shall not require a review under the provisions of this chapter. (2) The expansion, enlargement, or alteration of a hazardous waste treatment, storage, or disposal facility in existence on July 1, 1985, constitutes a new proposal for which a siting license is required.

39-4408. UNAUTHORIZED TREATMENT, STORAGE, RELEASE, USE OR DISPOSAL OF HAZARDOUS WASTE PROHIBITED. (1) No person shall treat or store hazardous waste, nor shall any person discharge, incinerate, release, spill, place, or dispose any hazardous waste in such a manner that the waste, or any constituent thereof, may enter the environment, unless the department has issued said person a permit or a variance as required for the specific activity involved or exempted the activity from permit requirements.

⁵ Preliminary Water-Surface Elevations and Boundary of the 100 Year Peak Flow in the Big Lost River at the Idaho National Engineering and Environmental Laboratory, Idaho, US Geological Survey, Water-resources Investigations report 98-4065, DOE/ID-22148

⁶ DOE/ID-22148, page 8

⁷ DOE/ID-22148, page 6

⁸ Nuclear Regulatory Commission 10 CFR ss 61.50

Congressional mandate.⁹ Time is long overdue for DOE to own up to its mismanagement and comply with the same regulations other Americans are required to observe. Unchecked the legacy of the nuclear era will haunt future generations and their collective future.

The following table lists a sampling of the contaminated sites at the ICPP. The table shows the contaminate, the concentration of the contaminants based on DOE's own sampling data, and a reference for where the information was obtained.

ICPP Site	Contaminate	Concentration	Reference
Tank Farm Soils	Group 1		
CPP-15 Solvent Burner Tank Leaks CPP-605 3 R/hr	Cs-137 Pu-238 Pu-239/240 Tc-99	pCi/g 586,000 4,570 825 36	No Hazardous Materials sampling Inadequate info (B) @ 37 (C) 11-4
CPP-20 CPP-604 Unloading Area	STP Listed MLLW		No Hazardous Materials sampling Inadequate info (A) 2-120
CPP-25 Leak between WC-119 WL-102	STP Listed MLLW		No Hazardous Materials sampling Inadequate info (A) 2-120
CPP-26 Steam Flush Explosion HL Tank Lines 13 acres contaminated 50,000 c/m beta/gamma	Sr-90 Cs-137	pCi/g 15,800 6,730	No Hazardous Materials sampling Inadequate info (A) 2-120 (C) 10-6
CPP-27 CPP-33 WL-102 Tank Line Leak 30 R/hr 300 gallons 1,000 curies 50,000 cpm	Cs-137 Sr-90	pCi/g 1,370 506	No Hazardous Materials sampling Inadequate info (A) 2-125 (B) 35 +38
CPP-28 South WM-181 3,500 gallons HLLW Leaked containing 46,400 Ci 400 R/hr	Tritium Co-60 Sr-90 Cs-134 Cs-137 Pu-238* Pu-239 Pu-240 Pu-241 Am-241 Pu-242* U-234* Total TRU	pCi/g 25,000 23,000 57,000,000 76,000 100,000,000 276,000 13,000 12,000 1,100,000 1,500,000 32 21 2,901,053	Exceeds TRU Waste = 100,000 pCi/g or 100 nCi/g Requires deep geologic burial (A) 2-121 (C) 10-8 * (C) F5-21 (C) H-13

⁹ General Accounting Office, Clear Strategy on External Regulation Needed for Worker and Nuclear Safety, May 21, 1998, GAO/T-RCED-98-205

CPP-31 South of WM-183 14,000 gallon HLLW leak Containing 40,988 Ci Released 10 R/hr	Co-60 Sr-90 Cs-137 Eu-154 U-235 Pu-239 Pu-240 Mercuric nitrate Nitric acid	pCi/g 336 710,000 2,190,000 2,750 9,000 1,100 1,100	No Hazardous Materials sampling Inadequate info (A) 2-121 (C) 10-13 (C) H-13 (B) 37
CPP-32 HLLW above ground pipe leak Valve Box B-4 2 r/hr	Cs-137 Sr-90	pCi/g 277 278	No Hazardous Materials sampling Inadequate info (A) 2-125 (B) 37 (C) 10-15
CPP-58 PEW 20,000 Gallon Leak	Cs-137 Sr-90	pCi/g 63.6 95.6	(A) 2-133 (C) 11-10
CPP-79 HLLW from WCF 2,500 gallons Near Valve Box A-2 400 R/hr	Gross alpha Sr-90 Cs-137 Am-241 Pu-238 Pu-239 U-234 Total TRU	pCi/g 809,000 5,410,000 33,700,000 16,600 276,000 89,900 55 382,555	Exceeds TRU Waste = 100,000 pCi/g or 100 nCi/g Requires deep geologic burial (A) 2-123 (C) 10-17
Other Surface	Soil Sites	Group 3	
CPP-91			No Hazardous Materials sampling Inadequate info (A) 2-137
CPP-13 Calcine HLW from CPP-633 Contaminated 300 sq. ft.	Zirconium Cs-137 Sr-90	pCi/g 14.3 4,630 4,180	No Hazardous Materials sampling Inadequate info (A) 2-124 (B) 37 (C) 19-4
CPP-36 Transfer Leak 750 gallons containing 8.44 curies and 20 r/hr	STP Listed MLLW Sr-90 Cs-137 Pu-239 Am-241 Pu-238	pCi/g 139,750 5,174,400 320 760 8,200	(A) 2-126 (C) 12-7 RCRA waste
CPP-35 WCF Calcine Vessel Decon Leak CPP-633 10 gallons 10 Curies	STP Listed MLLW Sr-90 Cs-137 Eu-154 Pu-238 Hg	pCi/g or mg/kg 3,240 8,640 20 17 5.5	Mercury likely exceeds LDR's TCLP .025 mg/l RCRA waste (A) 2-125 (C) 12-4

CPP-93 Calcine Trench	Aluminum Mercury	mg/kg 120,000 140	Mercury likely exceeds LDR's TCLP .025 mg/l (A) 2-137 (C) 26-4
CPP-92 1500 2x4x8 boxes	STP Listed MLLW Mercury Cs-137 Sr-90 Pu-238 Pu-239/240	mg/kg 10.4 7,730 10,800 259 24.7	RCRA Waste Mercury likely exceeds LDR's TCLP .025 mg/l (A) 2-137 (C) 25-2
CPP-34 Rad Soil Dump >30 mr/hr 110.23 Ci Released	Sr-90 Cs-137 Lead U-234/238 Np-237 Pu-238 Mercury Silver Bis- (2 ethylhexyl) Phthalate	pCi/g or mg/kg 6,000 2,000 132 5.3 0.7 5.1	Likely exceeds TCLP Mercury 0.75 mg/l RCRA Waste (A) 2-119 (B) 36 (C) 18-3
CPP-14 Sewage Plant Two Imhoff Tanks	Arochlors (PCB) Cs-137 U-234 U-238	mg/kg or pCi/g 23 6.21 6.89 52.1	Exceeds LDR for PCB @ 10 mg/kg RCRA Waste (A) 2-118 (C) 17-5
CPP-44 Grease Pit	Chromium Lead Mercury	mg/kg 1,540 163 5	Likely exceeds LDR's TCLP Chrom. 0.6mg/l Lead 0.75 mg/l Mercury 0.025 mg/l RCRA Waste (A) 2-131
CPP-55 Mercury Contaminate CPP-T-15	Chromium (total) Mercury	mg/kg 130 5.2	Likely exceeds LDR's TCLP Chromium 0.6mg/l Mercury 0.025 mg/l RCRA Waste (A) 2-115
CPP-67 Percolation ponds	Cs-137 Pu-238 Pu-239-240 Sr-90	pCi/g 93.6 13 2.07 16.3	Inadequate hazardous waste sampling (A) 2-117 (C) 16-5
Soils Under	Buildings	Group 2	
CPP-02 CPP-603 French Drain 493 Curies Released	4,777,688 gallons		No Hazardous Materials sampling Inadequate info (A) 2-127 (C) F5-21
CPP-87 CPP-604 Vapor Off-gas blower PEW Pump Cell	Co-60 Cs-134 Cs-137	pCi/L 70,740 4,018 330,4180	No Hazardous Materials sampling Inadequate info (A) 2-136

CPP-89 Tunnel between CPP-604 & 605	Mercury Cs-137 Pu-238 Pu-239/240 Sr-90	pCi/g or mg/kg 10.4 7,730 259 24.7 10,800	Lead likely exceeds LDR's TCLP Mercury 0.025 mg/l RCRA Waste (A) 2-136 (C) 5-73
CPP-80 CPP-601 Vent Tunnel Drain 550 Curies Released	Cs-137 Sr-90	pCi/g 86,300 85,600 metal contaminants	No Sampling Inadequate info (A) 2-133 (C) 9-11
CPP-01 CPP-603 Settling Basin and dry wells # SW-048 & CPP-303	Cs-137 Sr-90 Co-60 Eu-154/155	pCi/g 46,000 4,850 322 35,000	No Hazardous Materials sampling Inadequate info (C) 13-6 (A) 2-127
CPP-03 Open Storage Area	Cs-137 Eu-152 Sr-90	pCi/g 65.1 2.13 43.9	No Hazardous Materials sampling Inadequate info (A) 2-127
CPP-04 CPP-05 CPP-603 soil around settling tank	Cs-134 Cs-137 Ce-144 Co-60 Eu-152 Eu-154 Eu-155	pCi/g 1,450 26,500 2,390 2,390 35,000 35,000 7,600	No Hazardous Materials sampling Inadequate info (A) 2-127
CPP-08 CPP-09 Open near CPP-603	Cs-137	1,080 pCi/g	No Hazardous Materials sampling Inadequate info (A) 2-128
CPP-10 800 gallon leak beside CPP-603 20,000 cpm	Cs-137	1,190 pCi/g	No Hazardous Materials sampling Inadequate info (A) 2-127 (C) 11-13
CPP-11 SFE-106 Tank 500 gallon leak			No haz mat. sampling (C) 13-14
CPP-19 CPP-603 to CPP-604 3,500 Gallon Line Leak	Cs-137 Co-60 Eu-152 Eu-154 Eu-155 Pu-239 Sr-90	pCi/g 408,000 21,600 87,600 53,500 9,620 141 125,000	Inadequate Hazardous Materials sampling Inadequate info (A) 2-129 (C) 21-4
SFE-20 Hot	Waste Tank Sys.	Group 7	

CPP-69 SFE-20	STP Listed MLLW Cadmium	mg/kg	Likely Exceeds LDR TCLP
Hot Waste Tank	Mercury	260	Cadmium 0.11 mg/l
CPP-512	Tank Liquid	pCi/l	Mercury 0.025 mg/l
CPP-603 Waste Tank	Cs-137	2,050,000	STP A.4-136
Fuel Cutting Facility	Sr-total	9,700,000	
	Pu-total	17,600,000	Exceeds
	Tank Sediments	pCi/L	TRU Waste =
	Cs-137	55,400,000	100,000 pCi/g or
	Sr-total	4,700,000,000	100 nCi/g
	Pu-total	93,500,000	Liquid + Sediments
	Tank Vault Liquid	pCi/L	
	Pu-total	248,000,000	Requires deep geologic burial
	Tank Vault Sediments	pCi/g	(C) 9-9
	Cs-137	8,920,000	
	Sr-total	1,720,000	
	Pu-total	79,200	

The ICPP Remedial Investigation/Feasibility Study lists 100 chemical/radiological release sites. Of the 100 release sites, 13 are related to the tank farm. The estimate of radioactivity in decayed values in the surface soils within the ICPP compound is 50,000 curies plus 22,200 curies released to the aquifer. (EMSSAB @ 5) Contaminates migrating from the ICPP are found in the following perched water sample data.

ICPP Well Sample Data

ICPP Well	Gross Alpha (pCi/l)	Gross Beta (pCi/l)	Strontium-90 (pCi/l)
CPP-55-06	7,290	191,000	65,600
MW-2	4,700	925,000	516,000
MW-5	520	211,000	110,000

(NEEL-95/0056 @ 2-162) EPA Maximum Concentration Limit (MCL) for gross alpha is 15 pCi/l; for gross beta 8 pCi/l; for Strontium-90 MCL is 8 pCi/l. (NEEL-95/0056 @ 5-25)

Contaminated Sites Not Included in ICPP Plan

CPP-49	PCB 3.8 L	29.1 mg/kg	Exceeds LRD UTS of 10 mg/kg RCRA Waste (A) 113
CPP-54	Mercury	29 mg/kg	Likely exceeds LRD TCLP 0.025 mg/l RCRA Waste (A) 2-115
CPP-39 CPP-HF Storage Tank & Dry Well	Barium	mg/kg 1,100	Likely exceeds LRD TCLP 21 mg/l RCRA Waste (A) 2-134
CPP-37 Gravel Pits 1 & 2	STP Listed MLLW 84,393 cm		STP 6-3 RCRA Waste

References

- (A) Waste Area Group 3 Comprehensive Remedial Investigation / Feasibility Study Work Plan (Final) Volume I, August 1995, INEL-95/0056, Lockheed Idaho Technologies Company
- (B) Department of Energy Idaho Operations Office, Session 1 Presentation Scope of Comprehensive RI/FR and ICPP Background, Talley Jenkins, January 17, 1996
- (C) Comprehensive Remedial Investigation/ Feasibility Study for the Idaho Chemical Processing Plant Operational Unit 3-13 at Idaho National Engineering Laboratory Part A RI/BRA Report (Final) US Department of Energy Idaho Operations Office, November 1997, DOE/ID-10534 Volume IV, V, and VI
- STP: Idaho National Engineering Laboratory Proposed Site Treatment Plan, March 1995, DOE/ID-10493, US Department of Energy Idaho Operations Office
- Federal Register, Tuesday May 26, 1998, Part-II, Environmental Protection Agency, 40 CFR Parts 148, 261, 266, 268, and 271, Land Disposal Restrictions Phase IV, Final Rule

Acronyms:

- LDR: Land Disposal Restrictions (RCRA)
TCLP: Toxic Contaminate Leach Procedure
RCRA: Resource Conservation Compliance Act
MLW: Mixed Low-Level Waste
UTS: Universal Treatment Standards under RCRA